A STARTLING DISCOVERY ABOUT THE MODERN ARMY RIFLES.

English Generals in the Field in the Soudan and Matabeleland Find That the Wounded Savages Keep Right on Fighting Unless Shot Through the Head or the Heart.

Are our troops armed with toy guns?

Are our new United States army rifles useless?

Has the Department of War of the United States spent on ingenious toys the money appropriated for the effective arming of our troops? And are the great armies of Great Britain and Europe also supplied with weapons which are less effective than the old-fashioned guns of the past generation?

It is hard to believe that all the experts of all the various governments, all the men of specialized training have gone astray. But recent events make a very strong case against them.

General Carrington, the commanding officer of the English troops in Matabeleland, and General Kitchener, Commander-in-Chief of the British forces in the Soudan, have both simultaneously complained to the British War Office. These generals are in the field and to their horror they have discovered that the Lee Metford rifles in use by their armies are almost worthless. They find that the savages are better equipped with their old-fashioned guns than the British troops with the new small-bore rifles.

This is the first actual and practical test of the small-calibre, modern rifle on the field of battle. And after the millions of dollars spent by every great nation in tests and experiments, all theories and supposed discoveries fall to the ground in the light of this practical experience with an actual enemy. Army experts and ordnance scientists have, apparently, made a great blunder instead of a great discovery.

The French press reports on recent experiments made with a view to getting a high muzzle velocity out of a large bore rifle. The German press maintains that there ought not to be too ready a reliance placed on the claims that have been advanced in favor of small bores.

The United States Government is in doubt, as is shown by the continued experiments on cadavers with the new regulation Krag-Jorgensen rifle at Fort Riley.

The sum total of experience with the new rifles is that up to 500 yards the explosive effect of the bullets is something terrific. Beyond that the bullet loses what is called its explosive force. It will continue in its death-dealing course for another 500 or 1,000 yards, but it will make a clear, round hole that kills if it strikes a vital point and slightly wounds if it does not.

The large bullet, from the old-fashioned rifle, smashed as soon as it struck a bone. If it hit a man's skull it killed him. If it lodged in his thigh bone it so spread and flattened itself that the mere shock of its sudden stoppage knocked the man down and left him motionless and helpless.

This would seem to the lay mind to have been enough wickedness for one bullet to accomplish, but it was not a result altogether satisfactory to military authorities. The rifle used during the War of the Rebellion could only be fired twice in a minute, and was not sure death, even in the hands of a good marksman, at a range of more than 300 yards. That was because it had a high trajectory, which means that in order to hit a man 500 yards away, you had to shoot up in the air and let the bullet drop on him. In order that a bullet would go further, and more nearly approach a horizontal line of flight, all the specialists began working at the problem of using a heavier charge of powder and a smaller calibre of bullet. The Franco-Prussian war showed that their experiments had resulted in the production of a more effective weapon than had been used ten years before. And after the Franco-Prussian war they went on trying smaller and smaller bullets until they arrived at the Krag-Jorgensen magazine rifle, now used in the United States Army; the Lee rifle, used in the United States Navy, and at the French Lebel Rifle, the British Lee-Metford, the Austrian Mannlicher and the German Hebler, all about the same.

Our own Krag-Jorgensen carries four cartridges at a loading, fires twenty shots a minute and will kill at a distance of two miles, which is about as far as a soldier's unaided vision will enable him to discover an enemy. The peculiar pride and joy of the inventors of the Krag-Jorgensen rifle (and of all the inventors of other patterns of rifles like it) lies, however, less in the long range of the weapons than in the exceeding flatness of their trajectory. The path of the trajectory of the Krag-Jorgensen bullet is so nearly flat, and the muzzle of the rifle needs to be so slightly elevated, that when you fire at the breast of a man two miles away, the bullet would not go over the head of a man half way between you and your mark.

The projectile which flies so far, so swiftly and so straight is in itself so hard that it will go through five feet of solid pine wood, and, as for a human body, the hard lead core enveloped in a case of sheet-steel, plated with nickel-copper, will go through the bodies of four or five men, one after the other, without being flattened or smashed.

Since the Franco-Prussian war there has been very little fighting anywhere, other than little border skirmishes of British troops in Africa and India. And, as new rifles are always wrapped up with a very great deal of red tape, and this red tape has to be very slowly unwound before the soldiers at outposts finally receive the new weapon, the new weapon has generally become quite obsolete and been replaced by a later weapon before it has made its way to the outlandish fringe of civilization, where there is always a little fighting to do.

Upon this, all the Secretaries of War shook hands with all the officers commanding-in-chief, and Christendom chuckled with joy as it realized how rapidly it could wipe out a great part of itself when the next war came.

"If I can fire twenty bullets a minute, and each bullet will go through four men, I can kill 38,400 enemies with one rifle in one working day of eight hours," said the individual Christian, and we all offered thanks.

But now, in the course of time, the new-fashioned rifle (which, it must be remembered, is about the same thing in America as nearly all European guns) has made its way to the extreme edges of the zone of "British influence," which means the most distant place in which the British think it safe to do a little killing by way of practice. And in some of the fighting in Matabele Island and on the eaves of Pamir, "the roof of the world," a most amazing discovery was made.

The modern small bullet, tried for the first time on living man, went through their bodies as easily as it went through the dead men and the dead horses of the experiments. But a rifle ball is not useful merely because it perforates an antagonist; it must either kill him or make him sit down and stop fighting. If it kills him there is an enemy the less. If it makes him useless without killing him there is not only for the time being an enemy the less, but also a hospital patient to encumber and embarrass the operations of the foe.

Every two or three wounded men make it necessary for an effective man to be withdrawn from active fighting in order to take care of them, and they make, too, a demand upon the field commissary—always a weak spot in an expeditionary force—in exchange for which they render absolutely no servelce.

The old-fashioned bullet, then, could only be used at short range, and one bullet would hit only one man, with its great blundering, spattering, spreading, shapeless mass of lead, but this man had to stop fighting when he was hit and he was a wounded man in the hospital.

The new bullet, as we now discover, will make a beautiful little round hole through one man and continue its journey and make a second hole through a second man if there happens to be a second man directly behind the first, and so on to the third or fourth man. But unless it strikes the brain, or the heart, or an artery, or some other part of the most vital core of man, it will not make him sit down and stop fighting.

A little hole drilled through his leg may result in blood poisoning, in lameness, in death, in this or that form of ineffectiveness, two or three days later, but it is so small a hole, and the little hard head of the bullet so beautifully retains its form, that there is hardly any resistance to the projectile's flight, hardly any shock to the man's system.

The little hole in his flesh closes up again; there has been no time to produce a hemorrhage, and the enemy you have perforated continues his efforts to perforate you.

Reason from these premises to the extreme conclusion, the result of a battle between two forces with the new type of rifle would be that the firing would continue until every man not killed had been disabled by an accumulation of small holes through his body. Now, although an obstinate man might be able to go on pumping bullets out of his magazine until he had a half a dozen little holes drilled through him, there is no doubt that within two or three days he would die from the result of so excessive a peppering.

The world has not yet seen a battle between two forces with a small calibre rifle, but there is every reason to believe that when such a battle does come the fighting will continue until those who have not been instantly killed have received fatal wounds, and each of the two forces have exterminated the other, like the Kilkenny cats of the fable. And in the meantime it may be expected that whenever a force equipped with a small calibre rifle meets a force of savages armed with the obsolete large calibre rifles, the savages will be able to do a greater execution at the moment and to continue fighting longer before they fall, although their ultimate loss may be the heavier.

This is a very serious matter for the consideration of the various nations whose armies have been equipped with the new style rifle, and for the very serious consideration of the American people in particular, who have the greatest possible objection to paying for things they cannot use.

Major John Van R. Hoff, surgeon U. S. A., in a recent conversation upon the failure of the new bullet to stop or knockout the ordinary soldier said:

"A remedy for this defect is now engaging the attention of ordnance experts. In Germany Busch and Reger were among the first to call attention to the difference in destructive effects between the large calibre bullets with low initial velocity and the small calibre jacketed bullets with high initial velocity. Later Moresow, Tauber and Pawlow, of Russia, made valuable contributions to this subject, which were followed by those of Chauvel and Nimier, of France.

"Hobart, of Austria, also; Kocher, of Switzerland; Demosthene, of Bucharest; Girard, of the United States Army; La Garde, of our army, whose researches have thrown much light upon the subject, and Griffith of Kansas, whose recent experiments at Forts Riley and Leavenworth have attracted wide attention. We know with certainty that the character of the wound is determined by the range; that is, by the distance from the gun, by the resistance of the wounded part, and, finally, by the shape of the bullet, or, as it is technically called, its deformation.

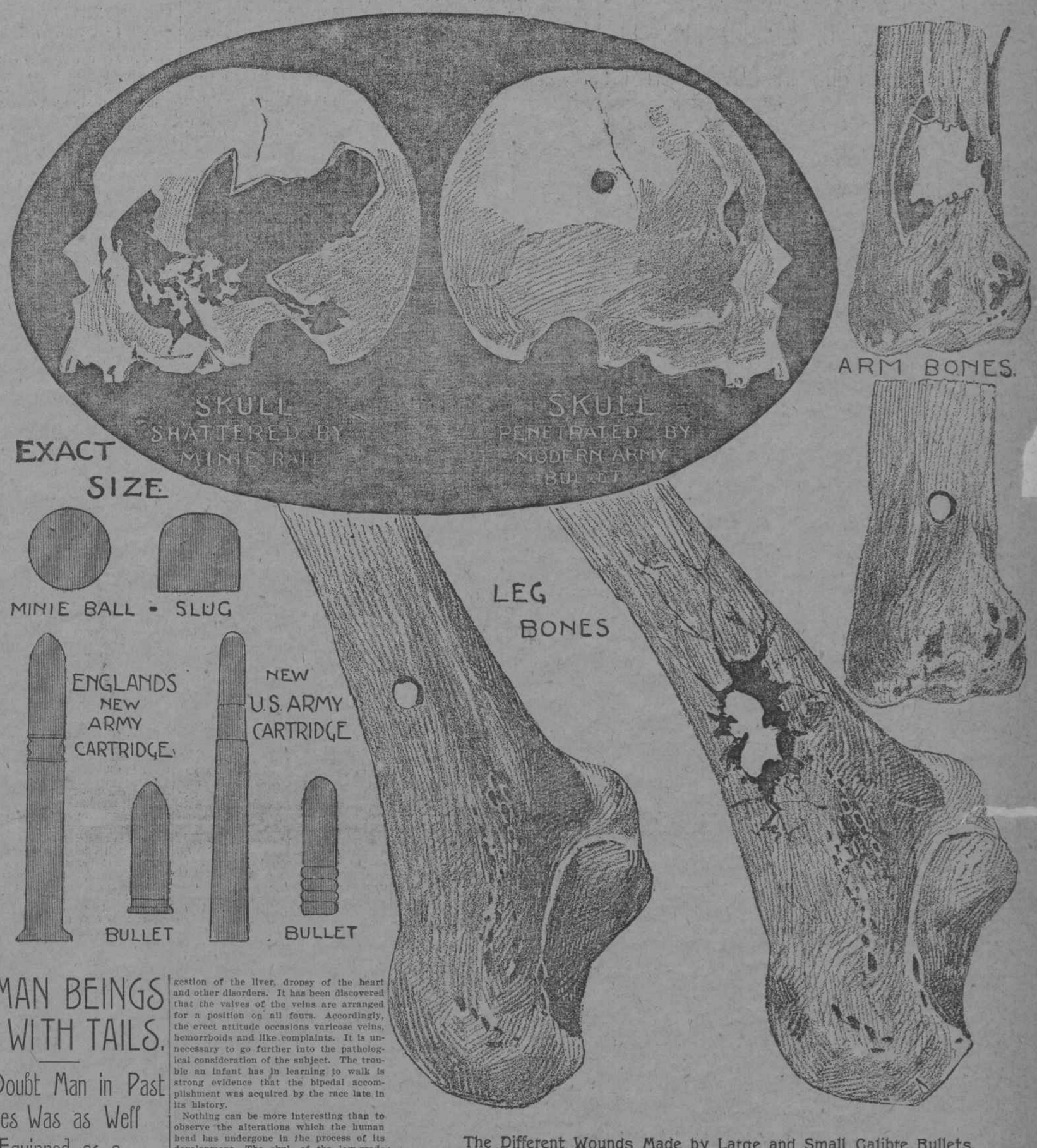
"It is more than doubtful if the wars of the future will be any deadlier than were those of the past. After all, it is not so much the gun as the man behind it, and when he realizes that twenty inches of fresh earth will afford him perfect protection from injury by the modern bullet—a fact which has been proved—he will soon find a way to dig himself a rifle pit, which with his bayonet he can do in a few minutes."

In a recent issue of the Army and Navy Journal, in the course of an article discussing Major Hoff's communication to the Sunday Journal, Brigadier-General Flagler, Chief of Ordnance, is quoted as declaring that the Krag-Jorgensen rifle is a "humane" arm, notwithstanding statements made by a board of officers which experimented with the weapon at Leavenworth. "I had the whole subject of the effect of the calibre .30 bullet on cadavers and some live animals," he said, "exhausted by experiments extending over a year or more at the Frankfort Arsenal some years ago, and the results are published at length in my annual report of 1893. The results show that wounds are much less liable to cause death or loss of limb than the larger calibre bullets which have no steel jackets, and that the use of the calibre .30 rifle is humane.' "

The question of the hour in military circles therefore is: Has the new-fashioned rifle proved itself less effective than the old, less prompt to "stop" an enemy?

The answer seems to be yes.

The only thing to be said in its favor is that it is possible now to kill a man at a greater distance than formerly it was possible to hit him at all. The case is against the new guns as it stands.



The Different Wounds Made by Large and Small Calibre Bullets.

HUMAN BEINGS WITH TAILS.

No Doubt Man in Past Ages Was as Well Equipped as a Monkey.

"There is every reason for believing that human beings once had tails," said Sir James Grant, K. C. M. G., M. P., of Ottawa, Canada, the other day. "Even now they are sometimes born with such caudal appendages. At a certain stage of its development one finds in the human embryo four or five additional segments of backbone, which would constitute a short tail if they did not disappear before birth. Sometimes they do not disappear, as in the case of a girl twelve years of age examined by Lissner, the anatomist, who had a tail more than four inches in length."

Scores of similar cases are on record, and there is evidence that abnormalities of the kind are readily inherited by offspring from the parent. There is at the end of every human being's spine a dimple marking the spot where the tail should be, had it not become aborted.

Furthermore, traces of the muscles remain which in the brute serve for the purpose of wagging the tail and for extending it. The spinal cord, presumably, did originally extend the entire length of the backbone; at present in an adult human being it is only three-fourths as long. From the lower end of it there stretches a mere thread of nerve tissue to the extremity of the spine, which is evidently a degenerated vestige of the cord. This portion has become rudimentary because there is no tail to wag, requiring nerves to direct the action of the muscles.

Anatomists to-day entertain no doubt of the fact that human beings once went on all fours. In truth man seems to be so ill adapted structurally for going about on two legs that this habit gives rise to ever so many diseases.

The quadruped's liver hangs suspended from the backbone, while that of man is hung actually from the top of the thorax and the base of the skull. This restricts the action of the diaphragm and confines the lungs. It must have an effect upon the aeration of the blood, and, consequently, upon the ability to sustain prolonged muscular exertion.

Similarly, the circulation of the blood is interfered with. The difficulty of raising that fluid against gravity produces congestion of the liver, dropsy of the heart and other disorders. It has been discovered that the valves of the veins are arranged for a position on all fours. Accordingly, the erect attitude occasions varicose veins, hemorrhoids and like complaints. It is unnecessary to go further into the pathological consideration of the subject. The trouble an infant has in learning to walk is strong evidence that the bipedal accomplishment was acquired by the race late in its history.

Nothing can be more interesting than to observe the alterations which the human head has undergone in the process of its development. The skul of the low-grade savage resembles that of the anthropoid ape; in civilized man you find its brain capacity increased and the jaw shortened. We at once recognize a brutal physiognomy by the projection and displacement of the great masticating apparatus, used by the ape as a weapon. The shortning has produced some remarkable changes.

Among the savage Australians, on the other hand, a fourth molar is not infrequently found. Evidence also exists that primitive man had six front teeth in the upper jaw, instead of four, which is the full complement in the present generation. The great canines, or "eye teeth," used by apes and other animals for tearing and holding, are in them longer and larger than the other teeth, and room is made by each of them in the opposite jaw by leaving an interval.

The projecting canines have disappeared in the normal human skull, and the intervals have accordingly closed up. Yet it is by no means uncommon to see the whole arrangement reappear, especially in low-type skulls. Projecting canines, or "snag teeth," are very common, in fact, and would be more often seen were it not for the dentist's skill. It is a noticeable fact that the muscle which lifts the lip from over the canines and bares the weapon is used by man when he sneers. As a matter of fact, the sneer is merely a modified snarl.

There can be no question that primitive man possessed certain organs of sensation superior to our own. The sense of smell, for example, has become in human beings almost rudimentary, because no longer required for the preservation of the species. From generation to generation the size of the olfactory bulbs in the brain is diminishing. A curious structure discovered in many animals, combining in a manner the senses of smell and taste, is found in man also, reduced by disuse to a mere trace, the duct connecting it with the mouth still remaining.

The pineal gland in the brain was once a third eye. Each of our eyes has a rudimentary third eyelid, such as birds and lizards possess, covered with minute hairs. The external ear seems once to have been pointed, like the quadruped's, and it has many now useless muscles which formerly were employed to control and direct it. You often see people even to-day who can wag their ears.

DEATH'S BEST FRIEND.

A Genius Has Conceived Plans for a Machine That Will Kill Everybody in Sight.

It is believed the auto-car is destined to be the deadliest implement of the wars of the future. It was designed by a man who believes that when the next war comes it must be short and decisive, a mechanical engagement.

The only drawback to the inventor's idea being indorsed is that the auto-car is but a figment of his brain, for he sees no reason for its construction at present. But his plans are matured, and the actual construction of the wonderful car would be simply the employment of mechanical skill.

Drawn up in a line of battle, a battalion of auto-cars resemble nothing so much as Roman chariots, moved by an unseen power, with the charioteer hidden from sight by the framework of steel. Above the framework of the body of the car, upheld by two monstrous wheels, and steadied by a third smaller one in front, rises a tower to the height of seven feet. Standing in the car and within the tower, which is really only half a tower, for it is open in the back, is the man who at once is engineer and soldier.

From without the auto-car bristles with death. Directly in front, moving up and down, and backward and forward at a rate regulated by the speed of the car, there is to be a six-pronged pitchfork, sharp, heavy and powerful. From the wheels, extending toward all points of the compass, there are to be blades, two feet in length, which by peculiar arrangement of mechanism not only revolve with the wheel, but also move backward and forward. The conical tower is punctured with eight holes, from each of which extends a gun barrel, firing bullets of small calibre at the rate of 122 a minute, but of penetrating force calculated to demolish the finest armor.

But of all the wonders of this car of war the greatest by far is to be the terrible force beneath the simple touch of a finger of the soldier. He works absolutely beyond sight of the opposing army, yet not a move on their part escapes him. By a series of lenses from the apex of the tower there appears before him on a ground glass a reproduction in miniature of the battlefield, so that standing in security he is able to direct his car, fire his shots and watch all effects as calmly as though he were in his quiet home. Electricity is the motive power of the car, and the touch of a button urges the carriage to lightning speed or retards it to a snail's pace.

This little ivory tipped button is to be directly in front of the operator, sunk deep in an iron plate, with a dozen similar buttons, each of which controls some action of the car. A touch of a certain one regulates the firing capacity of the death-dealing guns, another controls the razor-edged knives of the wheels, another the front fork.

Set slightly apart from the others is the button of the guiding power. At the will of the operator this button connects with the motor and gearing arrangement, by which the car darts forward, turns, retreats or cuts fearful circles. It is this last little button which is to give life to the auto-car to make it a human machine.

The genius with the imagination to construct this wonderous car of war believes that a dozen of them will decide in an hour a battle which under ordinary conditions would rage for months. He points to the conclusion that had Napoleon been possessed of a group of auto-cars on the even field of Waterloo he would never have seen the shores of St. Helena, and the history of the entire world would have been changed.

To illustrate more perfectly what the auto-car is capable of, its creator says that if a single one was started some morning at Broadway and Fourteenth street it could reach the Battery wall in just 45 seconds, and in those few seconds Broadway would be cleared of living humanity.

HATS OFF TO THE FLAG

Lowering the Colors at the United States Army Post Is a Solemn Scene.

Secretary of War Lamont has made no more popular innovation during his incumbency of the war portfolio than his new regulation concerning the lowering of the national colors on military posts at sunset. The flag is no longer unceremoniously pulled down immediately after the firing of the sunset gun, but its descent is marked with a dignity and decorum becoming the country's ensign.

Under the new rules the usual retreat call is sounded, after which the gun is fired. Then the band plays the "Star-Spangled Banner." The flag is lowered slowly and must not touch the ground until the last chord of the national anthem has been sounded. To make the scene more impressive every one within hearing distance stands while the band is playing and the men doff their caps.

"It is a most impressive sight," said Congressman George B. McClellan, who was a member of the Board of Visitors to West Point this Summer, "to witness the lowering of the flag under Secretary Lamont's order. It is not only impressive, but it teaches every one to have a proper respect for the national colors. Men, women and children seem to draw inspiration from the scene.

"While at West Point I saw crowds of young fellows from the city, gay, thoughtless fellows, lift their hats, stand in reverential attitude until the colors fell. It was because they saw what respect the military had for the flag. It is too bad we cannot have such a scene enacted nightly on every street of all our large cities.